

CLAIMS

1. A method for the manufacture of a matrix provided with a microstructure on its surface, which microstructure is reproducible in a plastic material as an inverted microstructure in a machine used, said microstructure being produceable by having a master with a microstructure on its surface coated with a layer, **characterized** in that

a) a first master, with a first chosen microstructure, is produced via a first method,

b) a second master, with a second chosen microstructure, is produced via a second method,

c) said first and second masters or matrices produced therefrom are applied with their microstructured surfaces adjacent,

d) said first and second masters or equivalent are covered by a first layer pertaining to the matrix,

e) said layer is covered by a thicker layer, a carrier, and

f) said first and second first layer pertaining to the matrix and said carrier are removed from said masters or the equivalent, as a matrix-related unit.

2. A method as claimed in claim 1, **characterized** in that said first master is produced having a number of similar or dissimilar surface sections, and in that each of these, transferred to a matrix, is removed to form a first matrix section.

3. A method as claimed in claim 1, **characterized** in that said second master is produced having a number of similar or dissimilar surface sections, and in that each of these, transferred to a matrix, is removed to form a second matrix section.

4. A method as claimed in claims 1, 2 or 3, **characterized** in that one or more first matrix sections and one or more second matrix sections are applied with their microstructured surfaces against a support.

5. A method as claimed in claim 1, **characterized** in that a sheet of nickel is chosen as the support.

6. A method as claimed in claim 5, **characterized** in that said sheet consists of a flat sheet with polished surface, a mirror surface.

7. A method as claimed in claim 1, **characterized** in that said first matrix or a first matrix section, and said second matrix or a second matrix section, are

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pressed against a support at least while they are being covered by a first wear layer.

8. A method as claimed in claim 1, **characterized** in that the first matrix or
5 matrix section has been provided with a first type of one amongst several selectable microstructures.

9. A method as claimed in claim 1, **characterized** in that the second matrix
10 or matrix section has been provided with a second type of one amongst several selectable microstructures.

10. A method as claimed in claim 1, **characterized** in that a carrier is formed by filling a mould cavity with a plastic composite.

11. A method as claimed in claim 1 and claim 10, **characterized** in that the
15 plastic composite is selected from a mixture of a polymer material and a filler material, such as quartz or metal-filled epoxy or silicon polymer.

12. A method as claimed in claim 1, **characterized** in that the plastic composite and the carrier formed are chosen with a coefficient of linear expansion
20 and/or a heat transfer capability and/or a thermal capacitive capability suitable for a chosen process in the injection-moulding machine.

13. A method as claimed in claim 1 or claim 10, **characterized** in that the
25 plastic composite is cured by the supply of heat and/or by being irradiated by UV light.

14. A method as claimed in claim 1 or claim 11, **characterized** in that the
30 plastic composite is selected from two-component types.

15. A method as claimed in claim 1 or claim 10, **characterized** in that a plastic composite, under a hard first wear layer, is selected with a suitable heat transfer and/or thermal capacitive capability for keeping the plastic compound pressed out in the machine hot.

16. A method as claimed in claim 1 or claim 10, **characterized** in that said matrix is coated with a second wear layer on the surface facing away from the surface of the first wear layer.

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17. A method as claimed in claim 1, claim 10 or claim 16, **characterized** in that said first wear layer and/or said second wear layer consist of titanium nitride or DLC (Diamond-Like-Carbon).

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5 18. A method as claimed in claim 1 or claim 10, **characterized** in that said thin first wear layer is in the form of a metal layer and is applied by means of a sputtering process and/or a vaporising process or, alternatively, a plating process.

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10 19. A method as claimed in claim 1, claim 10 or claim 18, **characterized** in that the first wear layer and/or metal layer is selected having a thickness adapted to stipulated requirements.

15 20. A method as claimed in claim 1, or claim 10, **characterized** in that the surface structure of the plastic composite on the surface facing away from the wear and/or metal layer, is machined flat.

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20 21. A matrix provided with a microstructure on its surface, which microstructure is reproducible in a plastic material as an inverted microstructure in a machine used, said microstructure being manufactured by having a master with a microstructure on its surface coated with a layer, **characterized** in that said microstructure consists of microstructured surfaces of a first and a second master, or matrices produced therefrom, which surfaces are oriented adjacent each other, in that said first and second masters or equivalent are covered by a first layer pertaining to the matrix, and in that said layer is covered by a thicker layer, a carrier.
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30 22. A matrix as claimed in claim 21, **characterized** in that said first master-related surface sections pertaining to the matrix are produced having a number of similar or dissimilar surface sections, and in that each of these, transferred to a matrix, is removed to form a first matrix section.

35 23. A matrix as claimed in claim 21, **characterized** in that said second master-related surface sections pertaining to the matrix are produced having a number of similar or dissimilar surface sections, and in that each of these, transferred to a matrix, is removed to form a second matrix section.

24. A matrix as claimed in claim 21, claim 22 or claim 23, **characterized** in that one or more first matrix sections and one or more second matrix sections are applied with their microstructured surfaces supported against a support.

25. A matrix as claimed in claim 21, **characterized** in that the first matrix or matrix section has been provided with a first type of one amongst several selectable microstructures.

26. A matrix as claimed in claim 21, **characterized** in that the second matrix or matrix section has been provided with a second type of one amongst several selectable microstructures.

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